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429,380



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Complete Specification Accepted : May 29, 1935.

COMPLETE SPECIFICATION

Improvements in or relating to the Manufacture of Wallboard

I, ARTHUR WILLIAM PARFITT (Chartered Patent Agent), a British Subject, of Stafford House, Norfolk Street, Strand, London, W.C.2, do hereby declare the nature of this invention (a communication from GYPSUM, LIME AND ALABASTINE, CANADA, LIMITED, a corporation of the Dominion of Canada, having its principal place of business at the Town of Paris, Province of Ontario, Dominion of Canada), and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the manufacture of wallboard wherein a core of hydrated calcined gypsum is molded and allowed to harden within paper liners, one of which folds over and encloses the edges of the core, and is particularly directed to the formation of a slightly bevelled edge on the under surface of the board at the longitudinal marginal edges of the board.

A gypsum wallboard with such an edge makes it possible to form with relative ease a greatly improved joint between the boards when they are erected to form wall surfaces to which decoration may be applied. While it has heretofore been proposed to bevel the edges of such boards, no adequate method or means have been disclosed for forming such an edge in practice. It is to be noted that but a slight bevel is required but to serve the purpose the bevel must be uniform and regular throughout its length and width in order to receive the joint filler and avoid the formation of shadow-forming ridges or projections on the finished wall surface.

In accordance with the invention a tapered depression is formed in each marginal edge of the under surface of the board while the board in a plastic condition is supported upon a travelling belt, the margins of which are maintained in contact with the tapered depressions until the board has hardened to retain its form.

The apparatus of the invention includes a travelling belt for supporting the board, squeeze rolls for forming the board, a plate at each end of the lower squeeze roll to bevel the edges of the board and

adjustable means for maintaining the marginal portions of the belt in contact with the bevelled edges of the board while the latter is in a plastic condition.

The invention will be described with reference to the accompanying drawing, in which

Figure 1 is a side elevation of pertinent portions of the apparatus for making the board;

Figure 2 is a section, partially broken away, on line 2—2 of Figure 1;

Figure 3 is a section, partially broken away, on line 3—3 of Figure 1, and

Figure 4 is a transverse section of the board.

In the drawing, 1 and 2 indicate what are usually known as the squeeze rolls which shape the core within the paper liners 3 and 4, the latter of which is usually folded over to enclose the edge of the core. At the upper edge of the ends of roll 2 is arranged a plate 5 which forms the tapered depression or bevel 6' on the longitudinal margins of the board.

The usual supporting belt 7 on which the board is carried is mounted on driving rolls 8, one only of which is shown in Figure 1, and the intermediate rolls 9.

When the tapered depression or bevel 6' is formed by the plate 5 on the lower squeeze roll, the core is quite plastic and in order to maintain the bevel or tapered depression in its original shape until the core sets and the adhesive between the margins of the paper liners dries, the margins of the supporting belt must be made to conform with the bevels on the board, and an adjustable supporting structure is provided for this purpose.

This structure comprises a series of relatively short rolls 11, each mounted in bearings 12 movably supported on cams 13 within the guide members 14 and 15 of the frame 16, which is provided for each roll. This structure is located at each side of the belt 7 at spaced points along the belt for a sufficient distance to sustain the bevelled edge until the core and adhesive has adequately set and dried to cause the board to retain its shape. The two pair of cams 13 in the supporting structure on immediately opposite sides of the belt are mounted on a shaft 17

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which may be reciprocated by a handle 18. A gear or sprocket wheel 19 is mounted on one end of each of these shafts and a belt or chain 20 passes over these wheels to reciprocate the shafts 17 and move all the cams 13 in unison. As mounted in the frame each roll is inclined, as shown, to conform with the bevel of the marginal edges of the board.

As illustrated in Figure 2, the rolls 11 are positioned for making a relatively narrow board, say 32 inch instead of 48 inch. When the cam shaft is reciprocated the cams revolve to lower the rolls, so that the inclined marginal portions of the belt are much narrower and just sufficient to engage the bevels on the wider board, the remaining portion of the belt lying horizontally in engagement with the flat body portion of the board.

This supporting structure provides flexibility and ease of adjustment for varying widths of board.

In operation the plates 5 are adjusted to deflect the margins of the belt upwardly to form the desired bevels on the edges of the board. The edge supporting structure is arranged to engage the portions of the belt immediately beneath the bevelled edges of the board and when so arranged the rolls 9 maintain the margins of the belt in contact with the inclined edges of the board until the board has become sufficiently hardened to retain its form. In other respects the operation follows the usual procedure and does not require detailed description here.

It will be apparent that the usual scoring devices for the lower liner will be arranged closer together in order to accommodate the decreased thickness of core at the edge of the board.

In copending Application No. 4002/34 (Serial No. 429379) claims have been made to a method of manufacturing wallboard of the character described wherein a continuous sheet of such board is formed and carried by supporting rolls and wherein pressure is exerted on the upper surface of the sheet at successive points along its length and against one of the supporting rolls to form pairs of oppositely disposed bevels across the sheet, the sheet being subsequently severed at the junction of the bevels. The copending application in question also

includes a subsidiary claim directed to a method having the features defined in the last preceding statement and wherein a bevel is formed on at least one longitudinal margin of the board and supported until the board has substantially hardened. It is to be understood that no claim is made herein to matter claimed in such copending application.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that, subject to the hereinbefore disclaimer, what I claim is:—

1. The method of manufacturing wallboard consisting of a core of gypsum enclosed within paper liners, characterized in that a tapered depression is formed in each marginal edge of the under surface of the board while the board in a plastic condition is supported upon a travelling belt, the margins of which are maintained in contact with the tapered depressions until the board has hardened to retain its form.

2. Apparatus for manufacturing paper enclosed gypsum wallboard having bevelled edges comprising a travelling belt for supporting the board and squeeze rolls for forming the board, characterized in having a plate at each end of the lower squeeze roll to bevel the edges of the board and adjustable means for maintaining the marginal portions of the belt in contact with the bevelled edges of the board while the latter is in a plastic condition.

3. Apparatus as defined in Claim 2, wherein said adjustable means comprises a series of inclined rolls at each side of said belt, a cam for moving each roll and means for operating said cams in unison to vary the contacting surface of said rolls with the belt.

4. Apparatus for manufacturing gypsum wallboard substantially as herein described.

Dated this 7th day of February, 1934.

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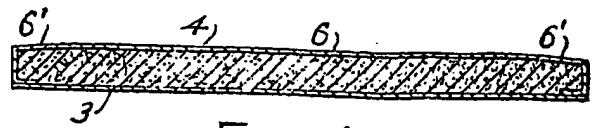


Fig. 4

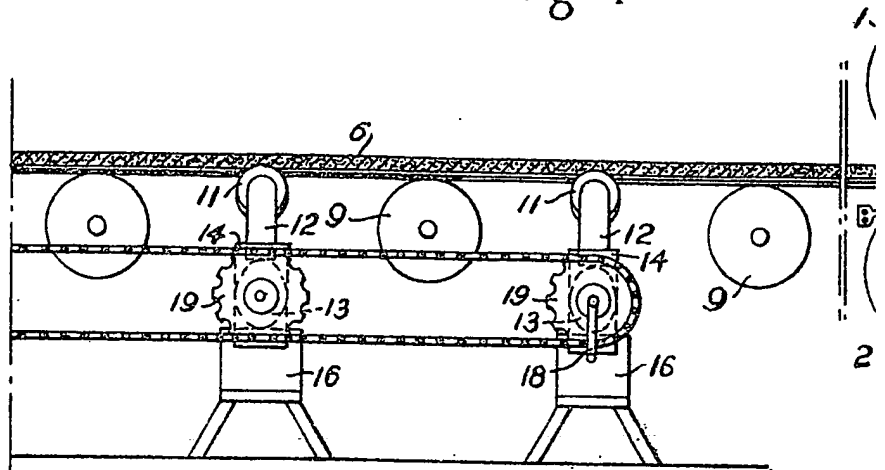


Fig. 1

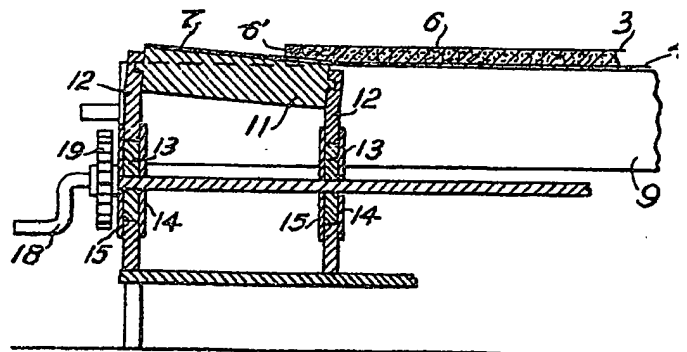


Fig. 2

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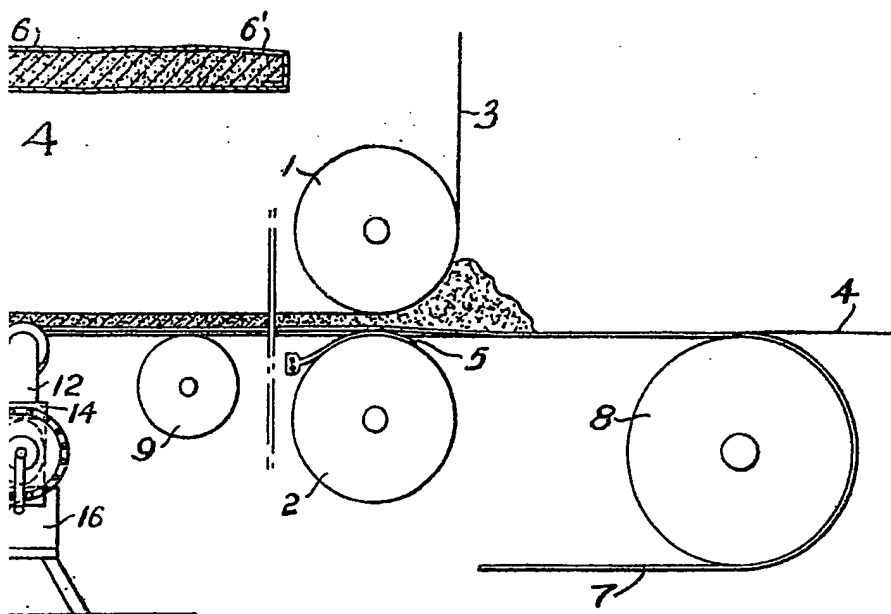


Fig. 1

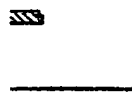
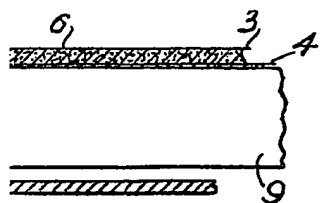


Fig. 3

[This Drawing is a full-size reproduction of the Original.]

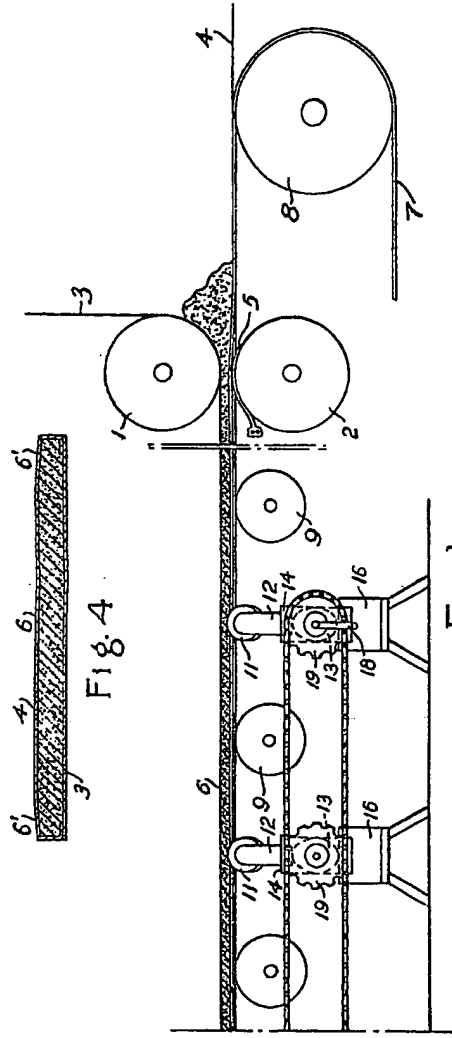


Fig. 1



Fig. 4

Fig. 1

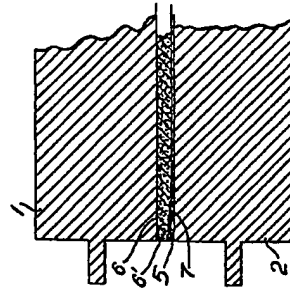


Fig. 3

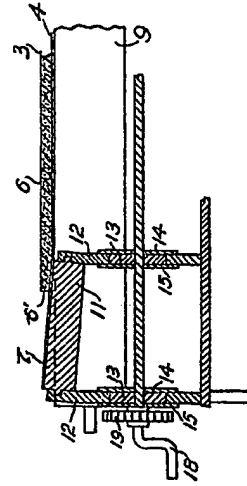


Fig. 2